

Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

that it has been clearly proved that the fungus of the host is necessary for the normal germination of the seeds of many orchids; but even here our knowledge is of little scientific significance until we know the exact method of the action of the fungus, whether its effect is due to the secretion of certain chemical compounds, which aid in water absorption, or to some other influence.—WM. CROCKER.

Chromogens.—TAMMES[10] reports a new chromogen, dipsacan, which is present in all the genera and species of Dipsaceae examined. Dipsacan has many points of resemblance to isatan and indican, yet it shows points of difference from both these, as well as from the pseudoindicans of the Acanthaceae. At temperatures above 35° C., in the presence of oxygen and water, dipsacan is transformed to a blue pigment, dipsacotin. The optimum temperature for this transformation is 100° C. At high temperatures, or at ordinary temperatures through the action of benzin, phenol, or dipsacase, an enzyme of this family of plants, dipsacan is transformed to a yellow-red pigment in the entire absence of oxygen. Upon admission of oxygen this pigment is transformed to dipsacotin.

PALLADIN[11] has already urged that chromogens are universally present in actively respiring portions of plants and that they are products of respiration. TAMMES'S results agree with this conception, for dipsacan is found to be most abundant in the most active portions of the plants and in those plants that are in the best condition for growth; otherwise only traces of dipsacan appear.

TAMMES suggests that dipsacan may be a glucoside, and that the yellow-red pigment, which originates independent of oxygen, is one the products of the hydrolysis; but it is not known that sugar is also a product. The formation of the dipsacotin from the yellow-red pigment is a matter of oxidation, as PALLADIN has shown is the case in the production of the pigments from numerous chromogens he has studied. It strikes one as possible that the formation of the chromatic materials in general requires both hydrolysis and oxidation. This would line up all these chromogens with indican.—WM. CROCKER.

Germination and light.—KINZEL[12] publishes another paper on the effect of light on germination of seeds, confirming the results of former papers and adding a number of species to those favored in germination by light.

In a discussion of "after-ripening" he states that the several years' delay in germination shown by the ripe seeds of *Thlaspi arvense* is due to the character of the embryo and not to the character of the coat, for the coat is very delicate. In an article published in 1906,[13] the reviewer has shown that the very marked delay

[10] TAMMES, TINE, Dipsacan and Dipsacotin, ein neues Chromogen und ein neuer Farbstoff der Dipsaceae. Recueil Trav. Bot. Neerland **5**:—. (pp. 48.) 1908.

[11] PALLADIN, W., Die Verbreitung der Atmungschromogens bei den Pflanzen. Ber. Deutsch. Bot. Gesells. **26a**: 378–389. 1908.

[12] KINZEL, WILHELM, Lichtkeimung. Einige bestätigende und erganzende Bemerkungen zu den vorläufigen Mitteilungen von 1907 und 1908. Ber. Deutsch. Bot. Gesells. **26a**:631–645. 1908.

[13] CROCKER, WM., Rôle of seed coats in delayed germination. BOT. GAZETTE **42**:282. 1906.

in these seeds is entirely due to the coats. The delicacy of the coat is no criterion of its effect, for certainly few seed coats are more delicate than that of the upper seed of the cocklebur, yet it generally secures a delay of a year or more.

It is surprising that experimenters are so slow to see that the proper test for dormancy of an embryo is to free it from incasing membranes with aseptic precautions and then to subject it to germinative conditions. This treatment will probably show the cause of most cases of delay to be in structures surrounding the embryo. If such treatment shows real dormancy of the embryo, as in the radicle of the hawthorn,[14] it is then necessary to find the particular process that is delinquent. This is certainly possible in the light of the great progress that is being made in studying the catalytic nature of protoplasmic activity. When cases of delayed germination are investigated in this way, we may hope for progress. But to assume dormancy is merely marking time and leaves the physiology of delayed germination, as it is now, more than ten years behind other phases of plant physiology.—WM. CROCKER.

Permeability.—RUHLAND[15] holds entirely untenable OVERTON'S theory of the permeability of protoplasm, both in its original form and as modified by NATHANSOHN. In the main RUHLAND offers the same sort of evidence as has ROBERTSON[16] from the animal side. RUHLAND studied the ability of various organic dyes to enter the living cell. Malachite green and thionin, both almost insoluble in lipoids, enter the live cells readily, while rhodamin, highly soluble in lipoids, hardly penetrates them at all. He cites a number of other dye stuffs where just the opposite behavior occurs to that expected by the lipoid theory. Both the acid and basic phthaleins are highly soluble in lipoids. The former penetrate living cells readily while the latter scarcely enter at all. RUHLAND says we have no hint of a reason for this behavior. RUHLAND and ROBERTSON agree that a thin layer of lipoids often exists near the periphery of the protoplasm. They believe, however, that it is not continuous in any case, but only fills interstices of the protein matter. ROBERTSON attributes the permeable character to the nature of the outer, very sparingly soluble, protein layer.—WM. CROCKER.

Reproduction and stimuli.—FREUND[17] has done a rather elaborate piece of work on the effect of external conditions upon the asexual reproduction of Oedogonium and Haematococcus. He finds that previous culture conditions determine very largely the effect of any reagent. Of the several methods he found of producing this response two illustrations will suffice to give an idea of the work. After

[14] CROCKER, WM., Longevity of seeds. BOT. GAZETTE **47**:69–72. 1909.

[15] RUHLAND, W., Beiträge zur Kenntnis der Permeabilität der Plasmahaut. Jahrb. Wiss. Bot. **46**:1–54. 1908.

[16] ROBERTSON, T. B., On the nature of the superficial layer in cells and its relation to their permeability and to the staining of tissues by dyes. Journ. Biol. Chem. **4**: 1–34. 1908.

[17] FREUND, HANS., Neue Versuche über die Wirkung der Aussenwelt auf die ungeschlechtliche Fortpflanzung der Algen. Flora **99**:41–100. 1908.